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Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

December 15, 1994

Ms. Catherine Damassa
ChemRisk
130 Locust Avenue
Larkspur, California 94939

Dear Ms. Damassa:

Enclosed are copies of portions of old Tennessee Valley Authority, Fish and Wildlife Branch, annual reports that contain information on commercial fisheries in reservoirs. It is possible there may be some data in archive from which these reports were extracted.

If you have any questions about this material, please call me at (615) 751-7309. If you are interested in digging deeper into our old data, please call Gary Hickman at (615) 632-1791.

Sincerely,

Ronald Pasch

EXPERIMENTAL COMMERCIAL FISHERY
HIWASSEE ISLAND, CHICKAMAUGA RESERVOIR

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R. W. Eschmeyer

This report covers the seining at Hiwassee Island for the period from March 3 to June 22, 1942. The primary purpose of the study is to note whether or not a commercial fishery for rough fish is practicable on Chickamauga Reservoir. All seining was with an 800' x 8' carp seine having a $1\frac{1}{2}$ inch mesh. A total of 101 hauls was made during the period mentioned above. All hauls were made in water less than eight feet in depth and all were in the vicinity of Hiwassee Island, though a number of localities were covered in the seining operations.

The Catch. During the first 6 weeks of the study (3 - 3 to 4 - 24) 58 hauls were made. This was the pre-spawning season when temperature was probably the dominant factor in determining the extent of inshore movement of the fish. Water temperatures ranged from freezing to 66° F. As the water warmed more fish entered the shoal but at no time, during this period, was the catch adequate to justify a commercial fishery by the method used.

The 58 seine hauls took fish comprising the following species:

<u>Species</u>	<u>Number taken</u>
Carp	1,537
Shad (chiefly gizzard shad)	1,145
Quillback	87
Carp sucker and Buffalo	607
Redhorse and Suckers	5
Gar	2
Channel Cat	32
Mud Cat	8

Blue Cat	13
Drum	41
Largemouth Bass	166
Sauger	15
White Bass	6
White Crappie	72
Black Crappie	48
Bluegill	28
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Total	3,812

Of the fish taken, 335 or only 8 $\frac{1}{2}$ percent were game or pan fish. Carp were more commonly taken than fish of any other species, but, in this two year old reservoir, most of them were too small to be of much value commercially. The 1,537 carp had a total weight of 889.7 pounds. The 53 catfish weighed 81.7 pounds.

Of these fish, 1,234 carp and 21 catfish were made available to the TVA Commerce Department. At times, however, the number was too small to justify their being taken by the Commerce Department and those not taken were later destroyed.

During the next two weeks (4 - 27 to 5 - 8) temperatures continued to rise but little or no spawning was noted. The catch per haul increased over the previous period. The total take in 13 hauls was:

<u>Species</u>	<u>Number taken</u>
Carp	773
Shad	1,016
Quillback	11
Carp sucker and Buffalo	226
Red Horse and Suckers	2
Gar	10
Channel Cat	37
Mud Cat	30
Blue Cat	20
Drum	45

Largemouth	72
Sauger	15
White Bass	--
White Crappie	16
Black Crappie	4
Bluegill	8
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Total	2,285

The catch per haul decidedly increased over the previous six weeks period. The average take per haul was 176 fish, compared with 66 fish for the earlier period. Too, the average weight per fish increased. Carp averaged about 0.8 pound each, compared with an average weight of about 0.6 pound for the earlier period. Catfish averaged 2.2 pounds. Most of the carp and catfish taken during this period were made available to the TVA Commerce Department. Game and pan fish comprised 5 percent of the total take.

The next three weeks period (5 - 13 to 5 - 27) covers the spawning time for most of the species. Apparently some of the species (carp and catfishes) tended to leave the shoals for open or deep water soon after spawning because the number per haul decreased. The average size of carp likewise decreased suggesting that the large adults remained in-shore for only a limited period. The catch in 15 hauls was:

<u>Species</u>	<u>Number taken</u>
Carp	509
Shad	1,529
Quillback	40
Carp sucker and Buffalo	375
Redhorse and Suckers	--
Gar	17
Channel Cat	14
Mud Cat	18
Blue Cat	2

Drum	59
Largemouth Bass	64
Sauger	9
White Bass	1
White Crappie	25
Black Crappie	3
Bluegill	7
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Total	2,672

During this period the carp taken averaged about two-thirds pound each; catfish taken averaged 1.6 pounds. Seining was still not practicable from a commercial viewpoint. Game and pan fish comprised only 4 percent of the total catch. Because of high temperatures during this period and the succeeding one, the fish would live for a very few days only in the live boxes. At no time during these periods was the number adequate to justify a trip by the Commerce Department to get the fish.

During the past spawning period (6 - 1 to 6 - 17) the catch declined and the average size of carp taken was smaller than previously. Presumably most of the larger fish had deserted the shoals. This may be partly due to the fact that the water level, which had been low for a number of weeks, was again high during this period. Most of the seining areas had been dry earlier in the season, and food, other than plankton, was probably scarce. Shad and largemouth remained fairly numerous. The shad presumably found food (on this reflooded area) in the plankton and the bass had an abundance of food in the young shad. Insect-eaters probably found little food in the area seined. The catch, in 15 hauls, during the past spawning season, a period characterized by high

temperature and high water level was:

<u>Species</u>	<u>Number taken</u>
Carp	255
Shad	611
Quillback	31
Carp sucker and Buffalo	137
Redhorse and Suckers	--
Gar	7
Channel Cat	5
Mud Cat	8
Blue Cat	2
Drum	--
Spoonbill	1
Largemouth Bass	35
Sauger	--
White Bass	2
White Crappie	24
Black Crappie	12
Bluegill	3
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Total	1,133

Game and pan fish comprised about 7 percent of the total, an increase over the several preceding periods. The difference in percentages seems due largely to a decrease in the number of non-game or pan fish rather than to an increase in the game fish.

It is obvious from the above data that a commercial fishery by seining the shoal areas was not practicable during any period between early March and late June in that area of Chickamauga Reservoir where the study was conducted. To some extent this failure is probably due to the fact that Chickamauga Reservoir is only two years old. Fish of commercial size are older than the reservoir itself and are therefore necessarily few in number. Whether or not fish of the first age group to be born in the reservoir will be of suitable size for commercial use by the end of the third growing season can be determined by seining and growth rate work

late this year.

Related Observations and Studies. A number of studies are being made in connection with the commercial fishery inquiry. Some concern the commercial fishery, others are of interest to the sport fishery. Some of these observations are discussed below:

1. Relation of inshore movement to temperature, turbidity, and water level fluctuation. No correlation has been made as yet of this information. Temperatures and turbidity readings are taken regularly and data on fluctuation are available. If a close correlation exists between these factors and the behavior of fish (both rough fish and game fish), such relationship can be noted.

2. Effect of baiting. During the early period of the study shad and other discarded fish were ground and used as bait. So far as could be noted this baiting had no appreciable effect on the number of fish caught. Whether or not it attracts fish in mid-summer is not yet known.

3. Comparative abundance of rough fish and game fish. It is noted above that rough fish decidedly predominate in that area of Chickamauga which was investigated, and in this respect compares with Dr. Tarzwell's findings on the Wheeler Reservoir backwaters. It seems, however, that both the actual abundance and the relative abundance of game and coarse fish varies considerably with different seasons.

In Chickamauga, as in other mainstream reservoirs, the rough fish problem is obviously an important one. I am still of the opinion that it is our most important fisheries problem in the

Valley. The question of settling this problem remains more complicated than ever, though, not only because there is considerable question regarding a commercial fishery but because of certain findings, relative to the nature of the spawning period of rough fish, as noted below.

4. Spawning. Because of the turbidity no information could be obtained regarding the depth of spawning. Weekly examination of a relatively large number of fish, however, gives a rather complete picture of the time of spawning.

Spawning of shad apparently began about mid-May and continued for at least several weeks.

The height of carp spawning was from mid-May to the end of May. By June 1 almost all carp were spent.

The first evidence of bass spawning was obtained May 18. Three weeks later all those examined were spent.

Not only did the spawning seasons of carp, shad, and bass coincide, but all were for a prolonged period with an increasing number of spent fish being taken each day. Control of rough fish (carp) by drawdown would, therefore, require a series of fluctuations rather than a single drawdown and such fluctuations might effect bass spawning, depending on the depth of the bass nests.

Information on spawning time was also obtained for several other species and the age at maturity will be known when the growth rate studies have been completed. Most of the small carp, tentatively considered year old fish, were mature. Young

carpsuckers and buffalo, considered to be of the same age as the carp, were not mature. Almost all two year old bass spawned. More complete information on the spawning question will be available later.

5. Growth of the fish. Scales are being taken at two week intervals from both game fish and rough fish to note the growth made in 1941 and in 1942, and to note what percentage of the season's growth is made during any two weeks period. It is known from Norris Reservoir studies that most of the growth is made during a period of a relatively few months. Since rate of growth reflects the amount of food available, growth studies are of considerable significance. If it should be found, for example, that growth of game fish is slow, the rough fish problem would perhaps be even more serious than if growth were rapid. No growth information will be available until the scale readings have been completed.

6. Survival and growth of young. Recent seinings with a minnow seine indicate that a very large number of shad were produced in the 1942 hatch. A slow haul of about 600 yards in open water with a minnow seine yielded 3,500 young shad. Young carp, bass, and crappie are also being taken (all this year's crop) and some idea may be gained of the relative abundance of the young of various species produced. It appears that the shad, already very abundant, will increase in numbers as time goes on. Their value as food for other fish is questionable because of their fast growth. A large sample of this year's fish, taken June 16, varied in length

from 22 to 78 m.m. with an average length of about 40 m.m.

Apparently these fish serve as crappie food for only a very few weeks, though year old fish are not infrequently taken in the stomachs of the adult two-year-old bass.

A study of the growth and abundance of young of various species is being continued weekly.

7. A total of 78 adult bass were furnished the Norris Hatchery for brood stock, and rough fish used for growth and spawning studies were provided Norris Hatchery to be used as bass food.

A variety of information is being obtained from the Hiwassee Island studies, though some of it is not especially encouraging so far as the rough fish problem is concerned.

At times data obtained in one way lend support to conclusions drawn from information obtained in some other aspect of the study; for example, the young, recently hatched shad covered a wide size range (ranging from 22 to 78 m.m.) suggesting that they were not all hatched at one time. Examination of the adult fish had indicated that the spawning of shad extended over a period of several weeks.

Future Consideration. It is anticipated that this study will continue for the remainder of the season, giving us, for the first time, a reasonably complete picture of the larger fish and the newly hatched fish in one ecological unit of one reservoir (the shoal). It becomes increasingly apparent that the problem of fish ecology in our reservoir is an extremely complicated one and that we need to learn much more about fish distribution within our reservoirs at various seasons to effectively use the fish supply--whether for a commercial fishery or for the sport fishery.

In addition to the regular studies mentioned above, several further inquiries are contemplated. These include:

a. Trawling. Since the fish are apparently in deep water or in open water efforts will be made to take fish in a rather crude trawl made from netting materials and lumber. If this trawl should work with only reasonable success, it may be expected that a larger, better made trawl would be practicable. The net is now ready for use and will be tried in the very near future.

b. Consideration of the effect of mayfly emergence on the distributions of rough fish. We are told by local residents that numerous carp are near the surface eating dead mayflies when these have emerged (presumably after the emerged females have laid their eggs and died). It is possible that, during this period which should begin soon, larger catches of carp may be made by seining. Efforts will be made to note the relationship between carp feeding and the abundance of mayflies. The feeling of local residents is that our catch will greatly increase after the emergences begin.

c. The small shad question. As noted above, 3,500 small shad were taken in a relatively short haul with a minnow seine. If these can be taken in really large numbers the Commerce Department will be contacted regarding the possibility of experimenting with these fish to note whether or not they can be prepared as a sort of fresh water equivalent of the sardine.

d. Survival, growth, and abundance studies of the young. These studies recently begun will be continued. Collection will be

with a minnow seine. They should provide information regarding the success of the spawning of game and rough fish and may suggest whether or not the rough fish problem will be more acute in a few years. It now appears that the production of young rough fish is far greater than the production of young bass or crappie.

e. Intimately associated with these studies is the inquiry on food competition between rough fish and game fish. Stomach samples and bottom food samples are taken at regular intervals. This will be reported on separately in the near future.

I feel, and Mr. Stroud does too, that this program should not be curtailed. The problems are sufficiently complicated to require weekly study, especially since we have included observations on the young fish, and experimentation with other gear (trawling) for taking larger fish. The fact that to date our information has been negative so far as establishing a commercial fishery is concerned does not render the information obtained of less value.

1944

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ANNUAL REPORT

Biological Readjustment Division
Department of Forestry Relations
Tennessee Valley Authority
1943-1944

An inquiry into commercial fishing on Hales Bar and Chickamauga Reservoirs indicates that in 1943 about 17 commercial fishermen were operating on Hales Bar Reservoir, and that their catch was about 93,000 pounds of fish valued at about \$15,825. The catch consisted mainly of carp and catfish. About 15 full-time fishermen were operating on Chickamauga Reservoir. Their reported catch was about 33,700 pounds of fish, mostly carp and catfish, valued at about \$6,400.

Creel Census on Lower Reservoirs

Some creel census was continued on the lower reservoirs with the help of Reservoir Property Management Department. It was discontinued late in the fiscal year. Some of the data are now being tabulated. Information for fishing in the Guntersville Dam tailwater in May indicates that fishing is still very good. The catch in 771 fishing trips totalled 9,791 fish weighing 4,116 pounds. These data represent only a small percentage of the sport fishing and sport catch in the tailwater area. The average individual fishing trip yielded 12.7 fish, an average of 2.4 fish per hour. The catch consisted primarily of drum and crappie.

On June 3, restricted areas along the bank below Guntersville Dam were reopened to bank fishing. According to TVA Public Safety Officers, 1,000 fishermen were counted on the south shore on June 8. The report showed an average of over 300 fishermen daily in this limited area during June.

The restrictions on fishing in the tailwaters have undoubtedly interfered with the harvesting of the very extensive fish crop below our

ANNUAL REPORT

BIOLOGICAL READJUSTMENT DIVISION

FISCAL YEAR 1945

diagnosing the situation. The study does suggest, however, that most game fish species may be scarce in this area, and that rough fish may not be responsible for this paucity of game fish.

Fish Migration Inquiry--Wheeler Reservoir

It was learned during the previous fiscal year that there was no extensive fish migration to or from Railroad Ponds, backwaters of Wheeler Reservoir. Periodic operation of the two-way fish trap in the ditch connecting these backwaters with Wheeler Reservoir proper, during the current fiscal year indicate further that no extensive movement occurred into or out of these backwaters. Because of this lack of movement, population studies in the Railroad Ponds (to determine pounds of fish per acre) must be based on acreage at the time of the growing season of the fish, not necessarily on the acreage at the time of the inquiry. Based on acreage or volume of water during the growing season, the poundage of fish per acre in the Railroad Ponds is substantially lower than that indicated in our inquiries made several years ago.

Commercial Fishing

During the previous fiscal year two significant conditions were noted in the commercial fishery: (1) spoonbill fishing, previously practiced on Wheeler, Wilson, and Pickwick Reservoirs was concentrated on Gunterville, and (2) there was evidence of overexploitation of the spoonbill.

During the 1944-1945 fiscal year emphasis in spoonbill fishing shifted to Chickamauga and Watts Bar Reservoirs, and there was further evidence of the overexploitation of spoonbill in the lower reservoir. Since these fish are now in high demand, but have little sale value in normal times, the overexploitation is considered desirable.

The lower reservoirs yielded about 88,300 pounds (dressed) of spoonbill and 468,050 pounds of catfish, a ratio of about 1:5. Yield the previous year was 294,793 pounds (dressed) of spoonbill and 355,932 pounds of catfish, a ratio approaching 1:1. In the preceding fiscal year (1942-1943) spoonbill decidedly predominated.

The catch on the lower reservoirs (Guntersville, Wheeler, Wilson, and Pickwick) yielded an income of about \$140,000 to the commercial fishermen, in addition to the income which they may have received from local sales (the data recorded here are for sales to fish buyers only). Data on the catch are recorded by months in Table 1.

Values varied somewhat, and increased as the season progressed. The values given represent a close estimate. Actually, the value given as \$140,000 should probably be construed as meaning somewhere between \$120,000 and \$160,000.

Inquiry during the previous fiscal year indicated that about 15 fishermen were operating on Chickamauga, taking about 33,700 pounds of fish, mostly carp and catfish, valued at about \$6,400.

By October 1944, doodle-line fishermen from the lower reservoirs had begun migrating to Chickamauga and Watts Bar Reservoirs.

Table 1. - Catch of commercial fish (buyers reports only) on Gunter'sville, Wheeler, Wilson, and Pickwick Reservoirs, in pounds. (Dressed weight for spoonbill, round weight for all others.)

Month	Spoonbill	Catfish	Carp	Buffalo	Drum	Sturgeon
July (1944)	12,000	34,700	1,900	700	400	-
August	10,000	31,000	3,000	500	1,050	-
September	8,000	24,000	1,550	500	2,500	-
October	7,500	30,500	300	600	350	250
November	6,700	22,400	2,675	5,125	1,030	-
December	3,050	6,250	300	2,525	85	-
Total	47,250	148,850	9,725	9,950	5,415	250
Price paid to fishermen	.25	.18	.05	.05	.18	.18
Value	\$11,812	\$26,793	\$486	\$497	\$975	\$45
January (1945)	1,600	4,450	475	4,325	300	150
February	5,000	17,500	4,450	20,000	1,750	700
March	4,500	47,000	2,530	14,500	3,100	-
April	4,600	59,600	2,600	14,000	1,000	-
May	5,550	51,150	4,750	18,500	750	-
June	19,800	140,500	9,750	19,500	13,900	-
Total	41,050	319,200	24,555	90,825	20,800	850
Price paid to fishermen	.30	.22	.10	.10	.22	.22
Value	\$12,315	\$70,224	\$2,455	\$9,825	\$4,576	\$187
Grand total (pounds)	88,300	468,050	34,280	100,775 26,215	26,215 26,215	1,100
Value	\$24,127	\$97,017	\$2,941	\$10,322	\$5,551	\$235

Here, in nine months they took 98,379 pounds (dressed) of spoonbill, 74,295 pounds of catfish, and about 18,000 pounds of other fish. Details are presented in Table 2. The catch valued at about \$40,000, represents sales to the fish buyers only, not local retail sales. Toward the close of the fiscal year fishing increased in intensity. Spoonbills in these waters were reported to be large and in excellent condition.

There was also a small amount of commercial fishing on Kentucky Reservoir, though this was not very intensive.

Late in the fiscal^{year}/the Alabama State Legislature passed a bill permitting netting in TVA waters for commercial species. The extent to which this bill may influence the fishery will be observed later.

Mussel Fishing

As dams were being completed on the Tennessee, mussel fishermen kept moving to the unimpounded areas. On completion of Kentucky Reservoir no unimpounded areas remained, and mussel fishing continued in the upper portion of Kentucky Reservoir. Recently one of the operators returned to upper Wheeler Reservoir (Indian Creek area) and found musseling rather good. About 1,000 pounds are dug daily by this individual when the rigs are in operation. The meat is used as hog feed. The shells are now worth \$45 a ton delivered at the railroad station. At this price the musseling is profitable.

Apparently the impounding of the Tennessee River harmed the mussel fishery less than had been anticipated. However, the shells

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Table 2. - Catch of commercial fish (buyers reports only) on Chickamauga and Watts Bar Reservoirs, in pounds. (Dressed weight for spoonbill, round weight for all others.)^{1/}

Month	Spoonbill	Catfish	Carp	Buffalo	Drum
October (1944)	8,650	6,375	-	-	-
November	8,725	5,365	190	-	-
December	5,870	1,440	-	-	-
Total	23,245	13,170	190	-	-
Price paid to fishermen	.25	.18	.05	-	-
Value	\$5,811	\$2,371	\$9	-	-
January (1945)	1,545	825	225	-	-
February	750	2,250	-	450	-
March	12,000	8,500	500	1,000	500
April	15,750	16,550	750	2,500	-
May	11,780	15,000	2,600	2,500	1,000
June	11,500	18,000	2,650	1,500	1,400
Total	53,325	61,125	6,725	7,950	2,900
Price paid to fishermen	.30	.22	.10	.10	.22
Value	\$15,998	\$13,448	\$673	\$795	\$638
Grand total	^{14,410} 98,379	74,295	6,915	7,950	2,900
Value	\$21,809	\$15,819	\$682	\$795	\$638

^{1/} Catch negligible earlier in the year, though 10,000 pounds of spoonbill and an undetermined poundage of catfish were taken in September. At this time (September) the legality of use of doodle lines in Tennessee was being questioned. Operation was intermittent and data for September are incomplete.

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ANNUAL REPORT
FISH AND GAME DIVISION
FISCAL YEAR 1947

The next Reservoir
downstream from
Watts Bar.

Commercial fishing - July 1, 1946, to June 30, 1947 - Chickamauga Reservoir

	Spoonbill	Catfish	Carp	Buffalo	Drum	Sturgeon	Total
<u>1946</u>							
July	600	1,450	1,550	200	640	-	4,440
August	1,750	4,450	1,500	750	400	-	8,850
September	950	3,450	1,750	450	750	-	7,350
October	850	6,750	950	640	450	-	9,640
November	550	5,400	450	850	650	-	7,900
December	200	750	350	600	50	450	2,400
<u>1947</u>							
January	50	650	350	600	50	200	1,900
February	300	2,250	200	200	100	100	3,150
March	350	1,250	200	300	100	450	2,650
April	1,250	2,250	850	1,450	450	-	6,250
May	750	4,000	750	650	200	-	6,350
June	750	3,000	800	450	150	-	5,150
Total	8,350	35,650	9,700	7,140	3,990	1,200	66,030

Commercial fishing - July 1, 1946, to June 30, 1947 - Douglas, Watts Bar, Chickamauga, Gunter'sville, Wheeler, Wilson, and Pickwick Reservoirs^{1/}

	Spoonbill	Catfish	Carp	Buffalo	Drum	Sturgeon	Total
Pounds	131,160	747,720	128,390	208,950	58,390	13,815	1,288,425
	@.36	@.25	@.05	@.05	@.20	@.20	
	\$47,217.60	\$186,930.00	\$6,419.50	\$10,447.50	\$11,678.00	\$2,763.00	\$265,455.60

^{1/} Fish buyers and commercial fishermen's reports (many pounds of all species sold direct to consumer of which we have no record) dressed weight for spoonbill, round weight for all others.

Commercial fishing - July 1, 1946, to June 30, 1947 - Kentucky Reservoir

	Spoonbill	Catfish	Carp	Buffalo	Drum	Others Mostly Black Horse	Total
Pounds	13,475	60,445	19,800	81,200	6,860	7,250	189,030
	@.41	@.30	@.05	@.07	@.20	@.07	
	\$5,524.75	\$18,133.50	\$990.00	\$5,684.00	\$1,372.00	\$507.50	\$32,211.75

Commercial fishing - July 1, 1946, to June 30, 1947 - Douglas, Watts Bar, Chickamauga, Gunter'sville, Wheeler, Wilson, Pickwick, and Kentucky Reservoirs

	Spoonbill	Catfish	Carp	Buffalo	Drum	Sturgeon and Others	Grand Total Weight
Grand total	144,635	808,165	148,190	290,150	65,250	21,065	1,477,455
Total value	\$52,742.35	\$205,063.50	\$7,409.50	\$16,131.50	\$13,050.00	\$3,270.50	\$297,667.35

1959 FISCAL YEAR

ANNUAL REPORT SUMMARIES AND TABLES

Fish and Game Branch

Division of Forestry Relations

1. Before Artman
2. Published Report

COMMERCIAL FISHING--VALLEYWIDE

The commercial fish harvest from nine mainstream reservoirs (Kentucky, Pickwick, Wilson, Wheeler, Guntersville, Hales Bar, Chickamauga, Watts Bar, and Fort Loudoun) and two storage reservoirs (Douglas and Cherokee) for the 1958 calendar year and for Norris Reservoir, also a storage reservoir, for 56 days during the experimental "Norris Rough Fish Removal Project" was 4,770,416 pounds valued at \$913,441.93. This was an increase of 561,591 pounds over the previous year. This increase in catch can be attributed to the development of more markets outside the Valley area and to increased local demand for catfish.

There were times, however, during the spring season, that the catch exceeded the demand and commercial fishermen removed part of their tackle from the water for short periods in order to decrease the catch.

The principal species of commercial fish harvested are catfish, spoonbill, buffalo, drum, carp, quillback, and sturgeon. Prices paid the commercial fishermen vary during the year, but the average price received per pound for the various species by the fishermen are as follows: catfish 25 cents; spoonbill, dressed weight, 20 cents; buffalo 15 cents; drum 10 cents; carp 8 cents; quillback 10 cents; and sturgeon 20 cents.

Of all the commercial species the catfish continues to be the most popular fish. Sportsmen also like to harvest them for sport and for

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ANNUAL REPORT
Fish and Game Branch
Fiscal Year 1960

COMMERCIAL FISHING--VALLEYWIDE

The commercial fish harvest from two storage reservoirs (Cherokee and Douglas) for the year, for Norris (also a storage reservoir) for 59 days during the experimental Norris rough fish removal project, and nine mainstream reservoirs (Fort Loudoun, Watts Bar, Chickamauga, Hales Bar, Gunterville, Wheeler, Wilson, Pickwick, and Kentucky) was 5,916,820 pounds valued at \$1,069,250.90.

In 1959, the commercial fish harvest increased by 1,146,404 pounds over 1958 and the value was \$155,808.97 greater than in 1958. This increase in catch is attributed to the increased demand for Tennessee River fish both in and out of Tennessee Valley. Some fish buyers have found markets outside of the Valley for carp, buffalo, and quillback, the difficult species to market.

The principal commercial fish harvested are the paddlefish, catfish, drum, quillback, buffalo, carp, and sturgeon. Prices paid to the commercial fishermen varied during the year, but the average price per pound for the various species by the persons harvesting them are as follows: spoonbill 20 cents, catfish 25 cents, drum 10 cents, quillback 10 cents, buffalo 12 cents, carp 5 cents, and sturgeon 20 cents.

The catfish continues to be the most popular of the commercial species. More and more restaurants at motels and other places are featuring Tennessee River catfish dinners. The market for buffalo averaging four pounds or more in weight is also good. The number of carp harvested is mostly regulated by the fish buyers' ability to find a market for them, which for this species is not always easy. The demand for drum is greater in the eastern part of the Valley than in other parts.

The Alabama Legislature enacted legislation for Colbert, Lauderdale, Limestone, Lawrence, and Morgan Counties (north Alabama) which brought about a change in the commercial fishing laws starting October 1, 1959. This legislation prohibits the use of gill, hoop, and trammel nets in commercial fish operations in these counties. However, in Madison, Marshall, and Jackson Counties commercial species can be taken with nets, baited and snaglines. Baited and snaglines are now the only legal equipment that can be used for the harvest of commercial fish in Lauderdale, Lawrence, Colbert, Limestone, and Morgan Counties. This gear is quite selective and catches more catfish and paddlefish than any other species.

As it now stands, netting is illegal in parts of TVA reservoirs in north Alabama but legal in the other. This is confusing and frustrating to the commercial fishermen and an unfortunate turn for fish management generally. The legislation does not have sympathetic support of any agency responsible for fisheries management in the TVA reservoirs.

FBryan
6-23-60

Carroll

MS office

ANNUAL REPORT

Fish and Game Branch

Fiscal Year 1961

before Artman

COMMERCIAL FISHING

Commercial fishermen harvested 4,935,418 pounds of nongame fish during the calendar year 1960 from three storage (Norris, Cherokee, and Douglas) and nine mainstream (Fort Loudoun, Watts Bar, Chickamauga, Hales Bar, Gunterville, Wheeler, Wilson, Pickwick, and Kentucky) reservoirs, valued at \$905,578.95. This harvest and value is 981,402 pounds of fish and \$163,672, respectively, less than in 1959.

Several factors probably influenced the decrease in harvest this year. To begin with, the weather during the early part of the year was unusually adverse to commercial fishing. The extreme cold and wind discouraged many commercial fishermen.

In addition, normal market conditions were upset by catfish from Louisiana and Florida. These fish could be purchased for 40 cents per pound dressed weight during winter and spring, and local buyers preferred to pay 40 cents per pound for these fish dressed rather than from 20 to 25 cents per pound for local catfish round weight. Associated with this situation was the shipment of large quantities of buffalo, carp, and catfish shipped from Texas and Louisiana during periods of high water in those areas to the Tennessee Valley area.

Another depressing factor on the catch this year was that the north Alabama net fishermen fished part of the year in middle and south

Alabama. This probably occurred as a result of the 1959 Alabama legislation eliminating nets in most of Pickwick, Wilson, and Wheeler Reservoirs.

The catfish continues to be the most desirable commercial fish. Other fish harvested were the paddlefish, drum, quillback, buffalo, carp, sturgeon, and gar. Prices received averaged per pound about as follows: catfish, 25 cents; paddlefish, sturgeon, and gar, 20 cents; buffalo, 12 cents; drum and quillback, 10 cents; and carp, 5 cents.

PBryan 6-27-61

ANNUAL REPORT

Fish and Wildlife Branch

1962

Annual Report Table Before Artman

Commercial Fishing

The commercial fish harvest during calendar year 1961 was 5,248,901 pounds of nongame fish from three storage and nine main-stream reservoirs that comprise the commercial fishing water in the Tennessee Valley. The value of these fish was estimated to be \$914,872.98. The 1961 harvest exceeded the 1960 by 313,483 pounds with an increase in value of \$9,294.03. Better market conditions for paddlefish, quillback, buffalo, and carp were responsible for this increase in catch.

Catfish continues to be the most desirable commercial fish and represents approximately 41 percent of the total catch. Other species harvested were paddlefish, drum, quillback, buffalo, carp, sturgeon, gar, black sucker, and turtles. Average price paid during the year was as follows: catfish 20 to 25 cents per pound, paddlefish 15 cents, drum 10 cents, quillback 3 cents, buffalo 12 cents, carp 5 cents, sturgeon 20 cents, gar 20 cents, black suckers 5 cents, and turtles 8 cents.

F&W Branch

ANNUAL REPORT

FISH AND WILDLIFE BRANCH

1963

Before Test

COMMERCIAL FISHERIES IN TENNESSEE RIVER - 1962 (CALENDAR)

The commercial fisheries operations in the Tennessee Valley are based on the food market, which provides an outlet for buffalo, catfish, carp, drum, paddlefish, redhorse, quillback, gar, and turtles. Statistics show that the market has increased three fold within the past 10 years, and no reason exists for believing that this trend will not continue. The projected increase in human population and the consequent need for more low cost protein food should assure the future of a bigger and better market for the commercial species of fish in the Tennessee River.

At present, about 700 people in the Valley are dependent on commercial fishing, in whole or in part, for their livelihood. Experimentation with and the adoption of more effective gear not now in use in Valley waters and the development of live fish holding facilities to even out the supply of fish are two modifications of our commercial fishing system that will greatly expand and improve the economic aspect of our fishery.

In calendar year 1962 two storage reservoirs, Cherokee and Douglas, yielded 361,196 pounds of fish, which sold for \$40,557.69. Nine mainstream reservoirs, as usual, sustained the greater part of the fishing by yielding 5,250,901 pounds, which sold for \$874,539.39. The total output therefore from the Tennessee River amounted to 5,612,097 pounds valued at \$915,097.08.

The storage reservoir catch consisted of 4 percent paddlefish, 31 percent catfish, 27 percent buffalo, 27 percent carp; the remaining 11 percent was comprised of drum, quillback, and redhorse. The mainstream catch included 4 percent paddlefish, 50 percent catfish, 26 percent buffalo, 16 percent carp, and the residual 4 percent was composed of drum, quillback,

turgeon, gar, and turtles.

The 1962 catch exceeded the 1961 catch by 363,196 pounds, but this provided only \$1,224.10 net gain in value over 1961. A higher catch but disproportionately low net value gain is explained by a lower catch of higher price species, such as paddlefish, and an increased catch in low value species, such as carp. Also the market price on buffalo wobbled from 12 cents per pound in 1961 to 6 to 12 cents per pound in 1962. Carp dropped from 5 cents per pound in 1961 to 2 to 5 cents in 1962.

An additional variable that affected the fishery was the adverse fishing weather during the latter half of 1962.

CJC:CES
5/24/63

ANNUAL REPORT

Hall

Fish and Wildlife Branch

Fiscal Year 1967

COMMERCIAL FISH HARVEST 1966

Total harvest of commercial fish (excluding shad) in TVA reservoirs during calendar year 1966 was estimated at approximately 6 million pounds worth \$1,008,000. This compares to 6.7 million pounds valued at \$1,243,000 in 1965. North Alabama-Mississippi catch declined 588,000 pounds, west Tennessee-Kentucky area 395,000 pounds, and east Tennessee increased 242 pounds. These declines are believed to be the result of too many part-time fishermen in the samples.

Almost half of the fish taken with nets and lines were caught in north Alabama-Mississippi (49.0 percent). The Tennessee portion of Kentucky Lake furnished 22 percent, east Tennessee 15 percent, and Kentucky portion of Kentucky Lake 14 percent. Catfish accounted for 45 percent of the total catch, buffalo 26 percent, and carp 17 percent.

Average catch per surface acre in 1966 was 11.7 pounds valued at \$1.97 compared to 13.1 pounds and \$2.43 in 1965. The highest per-acre yield was 15.04 pounds in north Alabama-Mississippi and the lowest (5.83 pounds) in east Tennessee area.

Shad Harvest for Bait

Commercial harvest of shad in the Valley during 1966 was 366,208 pounds valued at \$26,290. The 1965 yield was 424,750 pounds valued at \$16,990. Only three areas--north Alabama-Mississippi, Pickwick Dam area, and Kentucky portion of Kentucky Lake--are presently harvesting shad. In 1965 the first attempt was made to estimate the harvest of shad below mainstream dams. Shad concentrate below the dams mostly in the spring, and fishermen dip them with nets and sell them for bait, either whole or entrails only.

ANNUAL REPORT

Fish and Wildlife Branch

Fiscal Year 1968

Commercial Fish Harvest, 1967

Commercial fish harvest (excluding shad) in TVA reservoirs during calendar year 1967 was estimated at over 7 million pounds worth \$1,151,000. This compares to approximately 6 million pounds valued at \$1,008,000 in 1966. East Tennessee catch increased 955,900 pounds, the Tennessee-Kentucky area increased 423,300 pounds, and north Alabama decreased 194,700 pounds. The extensive increase in catch in east Tennessee 1967 over 1966 is partially due to a better market situation.

The amount of fish taken in northern Alabama-Mississippi was 38 percent of the total catch, east Tennessee 26 percent, Tennessee and the Kentucky portions of Kentucky Lake 18 percent each.

Species in 1967 catch compared to 1966 was: buffalo up 67 percent, carp up 17 percent, paddlefish up 14 percent, catfish up 7 percent, drum down 43 percent, carpsucker down 31 percent, and others (including gar, eel, black redhorse, and yellow bass) down 3 percent.

Catfish accounted for 40 percent of total catch, buffalo 36 percent, and carp 17 percent.

The average gross income of 750 Tennessee Valley licensed commercial fishermen was \$1,539 in 1967 (733 licensed fishermen out of a total of 1,483 did not fish). This varied from \$1,026 in west Tennessee (Kentucky Lake) to \$1,797 in Kentucky portion of Kentucky Lake.